INL/NSF

A Virtual Nuclear Reactor Center

AmeriSuites Airport Hotel, Denver
(August 21 & 22, 2006)

Day 1

8:00 A.M. *Introduction*- Paul Meakin

8:15 A.M.

- *The Global Nuclear Energy Partnership* – Ronaldo Szilard, INL

9:00 A.M.

- *Simulation Based Engineering Science (SBES) of Multi-Phenomena, Multi-Physics, and Multi-Scale Systems in Manufacturing Optimization – Balaguru, Perumalsamy, National Science Foundation*

9:45 A.M. *Break*

10:00 A.M.

- *An Introduction to Virtual Engineering - Mark Bryden, Chair – Iowa State University.*
- *Power Plant Virtual Engineering – Bob Romanosky, DOE*
- *Some Keys of Successful Virtual Engineering – Jerry Duncan, John Deere*
- *Connecting CFD, simulation based engineering and virtual engineering using BOXER – Bill Dawes, Cambridge University*

12:00 P.M. *Lunch*

1:00 P.M.

- *Coupling Systems Analysis Codes to Computational Fluid Dynamics Software - Dick Schultz, Co-chair – INL*
- *Is CFD good enough? – Yassin Hassan, Chair – Texas A & M University*
- *Computational Fluid Dynamics and the Numerical Nuclear Reactor - Dave Weber, ANL*
- *Virtual Nuclear Reactor Center Perspectives of a CFD Software Vendor - Eric Volpenhein, CD-adapco*
- *A fully Implicit, Second Order in Time, Simulation of a Nuclear Reactor Core Vince Mousseau – INL*

3:00 P.M. *Break*

3:15 P.M.

- *Virtual Nuclear Reactor – Neutronics and Fuel Burnup – Farzad Rahnema – Georgia Institute of Technology*
- *If Possible, How to Devise a Virtual Reactor – Abderaffi Ougouag - INL*
- *Challenges to Neutronics and Burnup Simulations for the Virtual Nuclear Reactor - Jess Gehin – ORNL,*
- *Computational Methods for Reactor Related Fixed-Source Simulations (Status, Needs) - Ali Haghighat – UF*
- *Neurtronics and Burnup Perspectives From Current Experience Related to the Very High Temperature Reactor – Ayman Hawari – NCSU*
- *Monte Carlo Depletion – Bill Martin – University of Michigan*
- *Modern, High Performance Transport and Thermal-Hydraulics Codes at LLNL Scott McKinley - LLNL*
- *High Performance Transport Parallelism, Multi-Physics, Sub-Grid Models, and SQE Todd Urbatsch - LANL*

5:00 P.M. *End of Day 1*

7:00 P.M. *Workshop Dinner*

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Day 2

8:00 A.M.

- *Virtual Nuclear Reactor Center Industry Perspecitve – Russell Stachowski, GE Nuclear Energy; Kord Smith, Studsvik-Scanpower; Eric Volpenhein, CD-adapco*
- *An "Industrial" Perspective on Virtual Reactor Simulation – Kord S. Smith, Studsvik Scanpower*

10:00 A.M. *Break*

10:15 A.M.

- *Sensitvity and Uncertainty Techniques Based on Perturbation Methods - Mark Williams, Co-chair – ORNL*
- *Coupling, Verification, Validation and Uncertainty Quantification with Model & Method Development – Bill Rider - LANL*
- *Sensitivity/Uncertainty Analysis Current Status and Unsatisfied Needs– Paul Turinsky, Chair – NCSU*

12:00 P.M. *Lunch*

1:00 P.M.

- *Predictive Modeling and Simulation (Challenges and Opportunities) – Sid YIP – MIT*
- *Computational Chemistry and High Performance Computing for Actinide Separations Systems - David Dixon – UA*

1:30 P.M.

- *Advanced System Design – Thomas Marcille, Chair – LANL*
- *"Large-scale system-level physics-based fully-integrated simulations for nuclear reactor design and analysis" Jacob Chung, UF*

3:00 P.M. *Break*

3:15 P.M. *Discussion and Path Forward*

5:00 P.M. *End of day 2*